SEQUENCE LISTING

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<120> RPS2 GENE FAMILY, PRIMERS, PROBES, AND DETECTION METHODS

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<140> US 10/613,765
<141> 2003-07-02

<150> US 09/867,852
<151> 2001-05-29

<150> US 09/301,085
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<150> US 08/310,912
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<400> 69
Arg Asp Thr His Gln Val Arg Cys Arg Lys Tyr His Asp Asp Gly Thr
 1   5   10   15
Gly Phe Gly Ile Ser Gln
            20

<210> 70
<211> 24
<212> PRT
<213> Arabidopsis thaliana

<400> 70
Arg Arg Arg Lys Arg Asn His Trp Cys Leu Trp Thr Trp Trp Gly Trp
 1   5   10   15
Glu Asp Asn Val Asn Ala Glu His
            20

<210> 71
<211> 10
<212> PRT
<213> Arabidopsis thaliana

<400> 71
Gln Arg Ala Asp His Lys Arg Thr Ser Val
 1   5   10

<210> 72
<211> 55
<212> PRT
<213> Arabidopsis thaliana

<400> 72
Cys Thr Asp Leu Gly Ser Asn Val Gln Arg Ile Arg Arg Val Tyr Asn
 1   5   10   15
Ser Ala Ser Arg Trp Ser Thr Val Gly Phe Ile Leu Gly Arg Glu Gly
            20   25   30
Asp Arg Arg Lys Gln Ser Phe Glu Asp Ile Gln Ser Phe Glu Thr Glu
        35   40   45
Thr Phe Leu Val Val Ala Arg
    50   55

<210> 73
<211> 15
<212> PRT
<213> Arabidopsis thaliana

<400> 73
Cys Leu Gly Arg Asp Arg Leu Gly Glu Asn Trp Ser Ser Ser Thr
 1   5   10   15

<210> 74
<211> 9
<212> PRT
<213> Arabidopsis thaliana

<400> 74
Arg Asp Arg Arg Arg Val Asp Pro Cys
 1   5

<210> 75
<211> 41
<212> PRT
<213> Arabidopsis thaliana

<400> 75
Gln Gly Lys Gln Met Gln Gly Asp Val His Asp Thr Val Tyr Ser Ile
 1   5   10   15
Met Gln Gln Tyr Gly Cys Gly Ile Gln Val Glu Ser Gly Val Ser Gly
            20   25   30
Glu Glu Thr Arg Val Gly Ala Val Leu
        35   40

<210> 76
<211> 21
<212> PRT
<213> Arabidopsis thaliana

<400> 76
Gly Met Glu Lys Arg Ser Phe Arg Val Ile Ile Asn Ser Pro Ala Arg
 1   5   10   15
Gly Asp Tyr Ser Glu
            20

<210> 77
<211> 17
<212> PRT
<213> Arabidopsis thaliana

<400> 77
Met Trp Arg Ile Ala Thr Ser Val Asp His Phe Arg Arg Ser His Gly
 1   5   10   15
Ser

<210> 78
<211> 24
<212> PRT
<213> Arabidopsis thaliana

<400> 78
Ile Ser Ser Arg Asp Glu Gly Tyr Glu Leu Cys Ile Cys Pro Phe Glu
 1   5   10   15
Ile Gln Leu Arg Gln Pro Arg Glu
            20

<210> 79
<211> 24
<212> PRT
<213> Arabidopsis thaliana

<400> 79
Ser Ala Ser Val Leu Phe Leu Val Leu Arg Phe Ile Pro Arg Arg Thr
 1   5   10   15
Phe Tyr Arg Asp Arg Ala Ala Cys
            20

<210> 80
<211> 14
<212> PRT
<213> Arabidopsis thaliana

<400> 80
Val Leu Gly Arg Arg Arg Val Ser His Gln Leu Pro Trp Arg
 1   5   10

<210> 81
<211> 22
<212> PRT
<213> Arabidopsis thaliana

<400> 81
His His Leu Gln Gly Ile Phe Ser His Trp Gly Ser Glu Ser Gly Met
 1   5   10   15
Phe Val Gly Asn Arg Arg
            20

<210> 82
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<400> 82
Glu Asn Thr Gly Glu Asp Ala
 1   5

<210> 83
<211> 43

<212> PRT
<213> Arabidopsis thaliana

<400> 83
Lys Thr His Met Pro Glu Thr Asp Asn Thr Asp Ala Pro Thr Glu Gly
 1   5   10   15
Leu Phe Glu Glu Asp Ser Asn Arg Val Phe His Ala Tyr Ala Cys Ser
            20   25   30
Gln Ser Leu Gly Leu Val Val His Lys Tyr His
        35   40

<210> 84
<211> 11
<212> PRT
<213> Arabidopsis thaliana

<400> 84
Cys Gly Gln Lys Leu Cys Ile Val Asp Gly Ile
 1   5   10

<210> 85
<211> 5
<212> PRT
<213> Arabidopsis thaliana

<400> 85
Gly Ala Asp Pro Ser
 1   5

<210> 86
<211> 14
<212> PRT
<213> Arabidopsis thaliana

<400> 86
Ser Arg Lys Leu Ala Thr Ser Val Gly Asp Leu Ile Val Arg
 1   5   10

<210> 87
<211> 6
<212> PRT
<213> Arabidopsis thaliana

<400> 87
Gln Asn Pro Asp Leu Ala
 1   5

<210> 88
<211> 31
<212> PRT
<213> Arabidopsis thaliana

<400> 88

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Asp Ser Val Val Tyr Gln Val Phe Gly Gly Val Val Ser Ser Val Tyr
 1               5                  10                  15
Val Arg Asn Lys Asp Lys Cys Ile Ala Thr Gly Ala Trp Glu Ser
            20                  25                  30


<210> 89
<211> 47
<212> PRT
<213> Arabidopsis thaliana

<400> 89
Lys Thr Glu Ala Ser Gly Pro Thr Lys Asn Ser Val Ser Ser Asp Asp
 1               5                  10                  15
Pro Thr Arg Cys His Met Leu Ala Glu Gln Ala Arg Gly Ser Glu Leu
            20                  25                  30
Val Leu Gln Leu Arg Arg Leu Gly Thr Ala Glu Leu Trp Arg Arg
        35                  40                  45


<210> 90
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<400> 90
Ser Arg Arg Thr Arg Ile Arg
 1               5


<210> 91
<211> 30
<212> PRT
<213> Arabidopsis thaliana

<400> 91
Leu Gly Ile Leu Gly Lys Pro Asn His Thr Arg Tyr His Cys Ser Leu
 1               5                  10                  15
Ile Gly Asp Pro Lys Asn Ser Leu Arg Val Arg Cys Phe Ala
            20                  25                  30


<210> 92
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<400> 92
Thr Tyr Thr Ala Ser Pro Arg
 1               5


<210> 93
<211> 10
<212> PRT
<213> Arabidopsis thaliana

<400> 93
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Thr Pro Leu Leu Gln Ser Pro Ile Thr His
1 5 10

<210> 94
<211> 8
<212> PRT
<213> Arabidopsis thaliana

<400> 94
Pro Trp Gln Glu Pro Glu Lys Thr
1 5

<210> 95
<211> 10
<212> PRT
<213> Arabidopsis thaliana

<400> 95
Leu Gly Val Pro Gly His Thr Arg Arg Phe
1 5 10

<210> 96
<211> 58
<212> PRT
<213> Arabidopsis thaliana

<400> 96
Leu Ala Ser Glu Ser Arg Gly Ser Asp Val Thr Gln Pro Ser Gln Leu
1 5 10 15
Asn Gln Ser Val Gly Lys Phe Cys Lys Pro Arg Leu Ser Ala Glu Tyr
20 25 30
Pro Leu His Lys His Phe Thr Leu Gln Gln Ala Glu Glu Cys Leu Met
35 40 45
Gly Ser Glu Thr Pro Lys Ala Arg Gly Asp
50 55

<210> 97
<211> 33
<212> PRT
<213> Arabidopsis thaliana

<400> 97
Thr Val Arg Leu Gln Arg Asp Arg Gly Ile Asp Lys Arg Thr Arg Glu
1 5 10 15
Ser Ile Arg Arg Arg Ser Asn Ile Val Pro Lys Pro Glu Asp Leu Glu
20 25 30
Asn

<210> 98
<211> 18
<212> PRT
<213> Arabidopsis thaliana

<400> 98
Gly Ser Ala Arg Thr Lys Gln His Pro Pro Ile Ser Ile Phe Ile Pro
1 5 10 15
Lys Ser

<210> 99
<211> 10
<212> PRT
<213> Arabidopsis thaliana

<400> 99
Asn Ile Ser His His Lys Leu Pro Gln Ser
1 5 10

<210> 100
<211> 18
<212> PRT
<213> Arabidopsis thaliana

<400> 100
Glu Thr Ala Val Ser Gly Glu Glu Asp Pro Asp Glu Leu Ala Asn Ser
1 5 10 15
Leu Leu

<210> 101
<211> 4
<212> PRT
<213> Arabidopsis thaliana

<400> 101
Thr Ser His His
1

<210> 102
<211> 14
<212> PRT
<213> Arabidopsis thaliana

<400> 102
Glu Leu Arg Ala Leu Cys Thr Asn Met Ser Ile His Lys Met
1 5 10

<210> 103
<211> 23
<212> PRT
<213> Arabidopsis thaliana

<400> 103
Gln Glu Ala Arg Lys Val Val Pro Val Lys Ser Ser Thr Phe His Ile
1 5 10 15
Ala Thr Lys Leu Glu Ile Met

20

<210> 104
<211> 6
<212> PRT
<213> Arabidopsis thaliana

<400> 104
Lys Pro Asn Tyr Pro Arg
1 5

<210> 105
<211> 1491
<212> DNA
<213> Arabidopsis thaliana

<400> 105
atcgattgat ctctggctca gtgcgagtag tccatttgag agcagtcgta gccccgcgtg 60
gcgcatcatg gagctatttg gaattttcgc agggttatcg attcgtagtg ggaacccatt 120
cattgtttgg aaccaccaac ggacgactta acaagctccc cgaggtgcat gatgaaaatt 180
gctccagttg ccataaatca cagcccgctc agcagggagg tcccgtcaca cgcggcaccc 240
actcaggcaa agcaaaccaa ccttcaatct gaagctggcg atttagatgc aagaaaaagt 300
agcgcttcaa gcccggaaac ccgcgcatta ctcgctacta agacagtact cgggagacac 360
aagatagagg ttccggcctt tggagggtgg ttcaaaaaga aatcatctaa gcacgagacg 420
ggcggttcaa gtgccaacgc agatagttcg agcgtggctt ccgattccac cgaaaaacct 480
ttgttccgtc tcacgcacgt tccttacgta tcccaaggta atgagcgaat gggatgttgg 540
tatgcctgcg caagaatggt tggccattct gtcgaagctg ggcctcgcct agggctgccg 600
gagctctatg agggaaggga ggcgccagct gggctacaag atttttcaga tgtagaaagg 660
tttattcaca atgaaggatt aactcgggta gaccttccag acaatgagag atttacacac 720
gaagagttgg gtgcactgtt gtataagcac gggccgatta tatttgggtg gaaaactccg 780
aatgacagct ggcacatgtc ggtcctcact ggtgtcgata aagagacgtc gtccattact 840
tttcacgatc cccgacaggg gccggaccta gcaatgccgc tcgattactt taatcagcga 900
ttggcatggc aggttccaca cgcaatgctc taccgctaag tagcagggta tcttcacgtg 960
gcggcatcat gacaagccca tgatgccgcc agcagctacc tgaatgccgt ctggcttttt 1020
ggtccctatt gtcgtatccg gaagatgacg tcaaagaatc tcggcaagag ctttcttgct 1080
cgactcctca gcttccggat cgatcaggtc gcttgccaga gcgcgcttgt ccatgagcat 1140
ctgccacagc tgctggtcga tggtgtcctc agctaaaggg attttgacga caaccatgcg 1200
caactgcccg ttgcgatacg ctcgatcctg aagccccggt gtccatggca gccccaagaa 1260
aaagacatag ttcgccgctg tgaggttgta gcctgtgccg gcggccgacc tggtcccgat 1320
aaacaccctg cagtccggat cctgctggaa agcatcaatc gccttctgcc gcttcttggg 1380
cgagtcactg cccaccaacg tcacgcaccc gacgccaagc ttgaggcagt gctcccgcaa 1440
cgtggccacg gattcctgat actcgcagaa gaggatcacc ttgtcgtcga c 1491

<210> 106
<211> 255
<212> PRT
<213> Arabidopsis thaliana

<400> 106
Met Lys Ile Ala Pro Val Ala Ile Asn His Ser Pro Leu Ser Arg Glu
1 5 10 15
Val Pro Ser His Ala Ala Pro Thr Gln Ala Lys Gln Thr Asn Leu Gln
20 25 30
Ser Glu Ala Gly Asp Leu Asp Ala Arg Lys Ser Ser Ala Ser Ser Pro
35 40 45
Glu Thr Arg Ala Leu Leu Ala Thr Lys Thr Val Leu Gly Arg His Lys

```
    50                  55                  60
Ile Glu Val Pro Ala Phe Gly Gly Trp Phe Lys Lys Lys Ser Ser Lys
65                  70                  75                  80
His Glu Thr Gly Gly Ser Ser Ala Asn Ala Asp Ser Ser Ser Val Ala
                85                  90                  95
Ser Asp Ser Thr Glu Lys Pro Leu Phe Arg Leu Thr His Val Pro Tyr
            100                 105                 110
Val Ser Gln Gly Asn Glu Arg Met Gly Cys Trp Tyr Ala Cys Ala Arg
        115                 120                 125
Met Val Gly His Ser Val Glu Ala Gly Pro Arg Leu Gly Leu Pro Glu
    130                 135                 140
Leu Tyr Glu Gly Arg Glu Ala Pro Ala Gly Leu Gln Asp Phe Ser Asp
145                 150                 155                 160
Val Glu Arg Phe Ile His Asn Glu Gly Leu Thr Arg Val Asp Leu Pro
                165                 170                 175
Asp Asn Glu Arg Phe Thr His Glu Glu Leu Gly Ala Leu Leu Tyr Lys
            180                 185                 190
His Gly Pro Ile Ile Phe Gly Trp Lys Thr Pro Asn Asp Ser Trp His
        195                 200                 205
Met Ser Val Leu Thr Gly Val Asp Lys Glu Thr Ser Ser Ile Thr Phe
    210                 215                 220
His Asp Pro Arg Gln Gly Pro Asp Leu Ala Met Pro Leu Asp Tyr Phe
225                 230                 235                 240
Asn Gln Arg Leu Ala Trp Gln Val Pro His Ala Met Leu Tyr Arg
                245                 250                 255
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<210> 107
<211> 1258
<212> PRT
<213> Arabidopsis thaliana

<400> 107

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Met Ser Tyr Leu Arg Glu Val Ala Thr Ala Val Ala Leu Leu Leu Pro
 1               5                  10                  15
Phe Ile Leu Leu Asn Lys Phe Asn Arg Pro Asn Ser Lys Asp Ser Ile
            20                  25                  30
Val Asn Asp Asp Asp Asp Ser Thr Ser Glu Val Asp Ala Ile Ser Asp
        35                  40                  45
Ser Thr Asn Pro Ser Gly Ser Phe Pro Ser Val Glu Tyr Glu Val Phe
    50                  55                  60
Leu Ser Phe Arg Gly Pro Asp Thr Arg Glu Gln Phe Thr Asp Phe Leu
65                  70                  75                  80
Tyr Gln Ser Leu Arg Arg Tyr Lys Ile His Thr Phe Arg Asp Asp Asp
                85                  90                  95
Glu Leu Leu Lys Gly Lys Glu Ile Gly Pro Asn Leu Leu Arg Ala Ile
            100                 105                 110
Asp Gln Ser Lys Ile Tyr Val Pro Ile Ile Ser Ser Gly Tyr Ala Asp
        115                 120                 125
Ser Lys Trp Cys Leu Met Glu Leu Ala Glu Ile Val Arg Arg Gln Glu
    130                 135                 140
Glu Asp Pro Arg Arg Ile Ile Leu Pro Ile Phe Tyr Met Val Asp Pro
145                 150                 155                 160
Ser Asp Val Arg His Gln Thr Gly Cys Tyr Lys Lys Ala Phe Arg Lys
                165                 170                 175
His Ala Asn Lys Phe Asp Gly Gln Thr Ile Gln Asn Trp Lys Asp Ala
            180                 185                 190
Leu Lys Lys Val Gly Asp Leu Lys Gly Trp His Ile Gly Lys Asn Asp
```

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        195                 200                 205
Lys Gln Gly Ala Ile Ala Asp Lys Val Ser Ala Asp Ile Trp Ser His
    210                 215                 220
Ile Ser Lys Glu Asn Leu Ile Leu Glu Thr Asp Glu Leu Val Gly Ile
225                 230                 235                 240
Asp Asp His Ile Thr Ala Val Leu Glu Lys Leu Ser Leu Asp Ser Glu
                245                 250                 255
Asn Val Thr Met Val Gly Leu Tyr Gly Met Gly Gly Ile Gly Lys Thr
            260                 265                 270
Thr Thr Ala Lys Ala Val Tyr Asn Lys Ile Ser Ser Cys Phe Asp Cys
        275                 280                 285
Cys Cys Phe Ile Asp Asn Ile Arg Glu Thr Gln Glu Lys Asp Gly Val
    290                 295                 300
Val Val Leu Gln Lys Lys Leu Val Ser Glu Ile Leu Arg Ile Asp Ser
305                 310                 315                 320
Gly Ser Val Gly Phe Asn Asn Asp Ser Gly Gly Arg Lys Thr Ile Lys
                325                 330                 335
Glu Arg Val Ser Arg Phe Lys Ile Leu Val Val Leu Asp Asp Val Asp
            340                 345                 350
Glu Lys Phe Lys Phe Glu Asp Met Leu Gly Ser Pro Lys Asp Phe Ile
        355                 360                 365
Ser Gln Ser Arg Phe Ile Ile Thr Ser Arg Ser Met Arg Val Leu Gly
    370                 375                 380
Thr Leu Asn Glu Asn Gln Cys Lys Leu Tyr Glu Val Gly Ser Met Ser
385                 390                 395                 400
Lys Pro Arg Ser Leu Glu Leu Phe Ser Lys His Ala Phe Lys Lys Asn
                405                 410                 415
Thr Pro Pro Ser Ser Tyr Tyr Glu Thr Leu Ala Asn Asp Val Val Asp
            420                 425                 430
Thr Thr Ala Gly Leu Pro Leu Thr Leu Lys Val Ile Gly Ser Leu Leu
        435                 440                 445
Phe Lys Gln Glu Ile Ala Val Trp Glu Asp Thr Leu Glu Gln Leu Arg
    450                 455                 460
Arg Thr Leu Asn Leu Asp Glu Val Tyr Asp Arg Leu Lys Ile Ser Tyr
465                 470                 475                 480
Asp Ala Leu Asn Pro Glu Ala Lys Glu Ile Phe Leu Asp Ile Ala Cys
                485                 490                 495
Phe Phe Ile Gly Gln Asn Lys Glu Glu Pro Tyr Tyr Met Trp Thr Asp
            500                 505                 510
Cys Asn Phe Tyr Pro Ala Ser Asn Ile Ile Phe Leu Ile Gln Arg Cys
        515                 520                 525
Met Ile Gln Val Gly Asp Asp Asp Glu Phe Lys Met His Asp Gln Leu
    530                 535                 540
Arg Asp Met Gly Arg Glu Ile Val Arg Arg Glu Asp Val Leu Pro Trp
545                 550                 555                 560
Lys Ser Arg Ile Trp Ser Ala Glu Glu Gly Ile Asp Leu Leu Leu Asn
                565                 570                 575
Lys Arg Lys Gly Ser Ser Lys Val Lys Ala Ile Ser Ile Pro Trp Gly
            580                 585                 590
Val Lys Tyr Glu Phe Lys Ser Glu Cys Phe Leu Asn Leu Ser Glu Leu
        595                 600                 605
Arg Tyr Leu His Ala Arg Glu Ala Met Leu Thr Gly Asp Phe Asn Asn
    610                 615                 620
Leu Leu Pro Asn Leu Lys Trp Leu Glu Leu Pro Phe Tyr Lys His Gly
625                 630                 635                 640
Glu Asp Asp Pro Pro Leu Thr Asn Tyr Thr Met Lys Asn Leu Ile Ile
                645                 650                 655
Val Ile Leu Glu His Ser His Ile Thr Ala Asp Asp Trp Gly Gly Trp
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            660                 665                 670
Arg His Met Met Lys Met Ala Glu Arg Leu Lys Val Val Arg Leu Ala
        675                 680                 685
Ser Asn Tyr Ser Leu Tyr Gly Arg Arg Val Arg Leu Ser Asp Cys Trp
    690                 695                 700
Arg Phe Pro Lys Ser Ile Glu Val Leu Ser Met Thr Ala Ile Glu Met
705                 710                 715                 720
Asp Glu Val Asp Ile Gly Glu Leu Lys Lys Leu Lys Thr Leu Val Leu
                725                 730                 735
Lys Pro Cys Pro Ile Gln Lys Ile Ser Gly Gly Thr Phe Gly Met Leu
            740                 745                 750
Lys Gly Leu Arg Glu Leu Cys Leu Glu Phe Asn Trp Gly Thr Asn Leu
        755                 760                 765
Arg Glu Val Val Ala Asp Ile Gly Gln Leu Ser Ser Leu Lys Val Leu
    770                 775                 780
Lys Thr Gly Ala Lys Glu Val Glu Ile Asn Glu Phe Pro Leu Gly Leu
785                 790                 795                 800
Lys Thr Glu Leu Ser Thr Ser Ser Arg Ile Pro Asn Asn Leu Ser Gln
                805                 810                 815
Leu Leu Asp Leu Glu Val Leu Lys Val Tyr Asp Cys Lys Asp Gly Phe
            820                 825                 830
Asp Met Pro Pro Ala Ser Pro Ser Glu Asp Glu Ser Ser Val Trp Trp
        835                 840                 845
Lys Val Ser Lys Leu Lys Ser Leu Gln Leu Glu Lys Thr Arg Ile Asn
    850                 855                 860
Val Asn Val Val Asp Asp Ala Ser Ser Gly Gly His Leu Pro Arg Tyr
865                 870                 875                 880
Leu Leu Pro Thr Ser Leu Thr Tyr Leu Lys Ile Tyr Gln Cys Thr Glu
                885                 890                 895
Pro Thr Trp Leu Pro Gly Ile Glu Asn Leu Glu Asn Leu Thr Ser Leu
            900                 905                 910
Glu Val Asn Asp Ile Phe Gln Thr Leu Gly Gly Asp Leu Asp Gly Leu
        915                 920                 925
Gln Gly Leu Arg Ser Leu Glu Ile Leu Arg Ile Arg Lys Val Asn Gly
    930                 935                 940
Leu Ala Arg Ile Lys Gly Leu Lys Asp Leu Leu Cys Ser Ser Thr Cys
945                 950                 955                 960
Lys Leu Arg Lys Phe Tyr Ile Thr Glu Cys Pro Asp Leu Ile Glu Leu
                965                 970                 975
Leu Pro Cys Glu Leu Gly Val Gln Thr Val Val Val Pro Ser Met Ala
            980                 985                 990
Glu Leu Thr Ile Arg Asp Cys Pro Arg Leu Glu Val Gly Pro Met Ile
        995                 1000                1005
Arg Ser Leu Pro Lys Phe Pro Met Leu Lys Lys Leu Asp Leu Ala Val
    1010                1015                1020
Ala Asn Ile Thr Lys Glu Glu Asp Leu Asp Ala Ile Gly Ser Leu Glu
1025                1030                1035                1040
Glu Leu Val Ser Leu Glu Leu Glu Leu Asp Asp Thr Ser Ser Gly Ile
                1045                1050 .              1055
Glu Arg Ile Val Ser Ser Ser Lys Leu Gln Lys Leu Thr Thr Leu Val
            1060                1065                1070
Val Lys Val Pro Ser Leu Arg Glu Ile Glu Gly Leu Glu Glu Leu Lys
        1075                1080                1085
Ser Leu Gln Asp Leu Tyr Leu Glu Gly Cys Thr Ser Leu Gly Arg Leu
    1090                1095                1100
Pro Leu Glu Lys Leu Lys Glu Leu Asp Ile Gly Gly Cys Pro Asp Leu
1105                1110                1115                1120
Thr Glu Leu Val Gln Thr Val Val Ala Val Pro Ser Leu Arg Gly Leu
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                1125                1130                1135
Thr Ile Arg Asp Cys Pro Arg Leu Glu Val Gly Pro Met Ile Gln Ser
            1140                1145                1150
Leu Pro Lys Phe Pro Met Leu Asn Glu Leu Thr Leu Ser Met Val Asn
        1155                1160                1165
Ile Thr Lys Glu Asp Glu Leu Glu Val Leu Gly Ser Leu Glu Glu Leu
    1170                1175                1180
Asp Ser Leu Glu Leu Thr Leu Asp Asp Thr Cys Ser Ser Ile Glu Arg
1185                1190                1195                1200
Ile Ser Phe Leu Ser Lys Leu Gln Lys Leu Thr Thr Leu Ile Val Glu
                1205                1210                1215
Val Pro Ser Leu Arg Glu Ile Glu Gly Leu Ala Glu Leu Lys Ser Leu
            1220                1225                1230
Arg Ile Leu Tyr Leu Glu Gly Cys Thr Ser Leu Glu Arg Leu Trp Pro
        1235                1240                1245
Asp Gln Gln Gln Leu Gly Ser Leu Lys Asn
    1250                1255


<210> 108
<211> 1143
<212> PRT
<213> Arabidopsis thaliana

<400> 108
Met Ala Ser Ser Ser Ser Ser Ser Arg Trp Ser Tyr Asp Val Phe Leu
 1               5                  10                  15
Ser Phe Arg Gly Glu Asp Thr Arg Lys Thr Phe Thr Ser His Leu Tyr
            20                  25                  30
Glu Val Leu Asn Asp Lys Gly Ile Lys Thr Phe Gln Asp Asp Lys Arg
        35                  40                  45
Leu Glu Tyr Gly Ala Thr Ile Pro Gly Glu Leu Cys Lys Ala Ile Glu
    50                  55                  60
Glu Ser Gln Phe Ala Ile Val Val Phe Ser Glu Asn Tyr Ala Thr Ser
65                  70                  75                  80
Arg Trp Cys Leu Asn Glu Leu Val Lys Ile Met Glu Cys Lys Thr Arg
                85                  90                  95
Phe Lys Gln Thr Val Ile Pro Ile Phe Tyr Asp Val Asp Pro Ser His
            100                 105                 110
Val Arg Asn Gln Lys Glu Ser Phe Ala Lys Ala Phe Glu Glu His Glu
        115                 120                 125
Thr Lys Tyr Lys Asp Asp Val Glu Gly Ile Gln Arg Trp Arg Ile Ala
    130                 135                 140
Leu Asn Glu Ala Ala Asn Leu Lys Gly Ser Cys Asp Asn Arg Asp Lys
145                 150                 155                 160
Thr Asp Ala Asp Cys Ile Arg Gln Ile Val Asp Gln Ile Ser Ser Lys
                165                 170                 175
Leu Cys Lys Ile Ser Leu Ser Tyr Leu Gln Asn Ile Val Gly Ile Asp
            180                 185                 190
Thr His Leu Glu Lys Ile Glu Ser Leu Leu Glu Ile Gly Ile Asn Gly
        195                 200                 205
Val Arg Ile Met Gly Ile Trp Gly Met Gly Gly Val Gly Lys Thr Thr
    210                 215                 220
Ile Ala Arg Ala Ile Phe Asp Thr Leu Leu Gly Arg Met Asp Ser Ser
225                 230                 235                 240
Tyr Gln Phe Asp Gly Ala Cys Phe Leu Lys Asp Ile Lys Glu Asn Lys
                245                 250                 255
Arg Gly Met His Ser Leu Gln Asn Ala Leu Leu Ser Glu Leu Leu Arg
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            260                 265                 270
Glu Lys Ala Asn Tyr Asn Asn Glu Glu Asp Gly Lys His Gln Met Ala
        275                 280                 285
Ser Arg Leu Arg Ser Lys Lys Val Leu Ile Val Leu Asp Asp Ile Asp
    290                 295                 300
Asn Lys Asp His Tyr Leu Glu Tyr Leu Ala Gly Asp Leu Asp Trp Phe
305                 310                 315                 320
Gly Asn Gly Ser Arg Ile Ile Ile Thr Thr Arg Asp Lys His Leu Ile
                325                 330                 335
Glu Lys Asn Asp Ile Ile Tyr Glu Val Thr Ala Leu Pro Asp His Glu
            340                 345                 350
Ser Ile Gln Leu Phe Lys Gln His Ala Phe Gly Lys Glu Val Pro Asn
        355                 360                 365
Glu Asn Phe Glu Lys Leu Ser Leu Glu Val Val Asn Tyr Ala Lys Gly
    370                 375                 380
Leu Pro Leu Ala Leu Lys Val Trp Gly Ser Leu Leu His Asn Leu Arg
385                 390                 395                 400
Leu Thr Glu Trp Lys Ser Ala Ile Glu His Met Lys Asn Asn Ser Tyr
                405                 410                 415
Ser Gly Ile Ile Asp Lys Leu Lys Ile Ser Tyr Asp Gly Leu Glu Pro
            420                 425                 430
Lys Gln Gln Glu Met Phe Leu Asp Ile Ala Cys Phe Leu Arg Gly Glu
        435                 440                 445
Glu Lys Asp Tyr Ile Leu Gln Ile Leu Glu Ser Cys His Ile Gly Ala
    450                 455                 460
Glu Tyr Gly Leu Arg Ile Leu Ile Asp Lys Ser Leu Val Phe Ile Ser
465                 470                 475                 480
Glu Tyr Asn Gln Val Gln Met His Asp Leu Ile Gln Asp Met Gly Lys
                485                 490                 495
Tyr Ile Val Asn Phe Gln Lys Asp Pro Gly Glu Arg Ser Arg Leu Trp
            500                 505                 510
Leu Ala Lys Glu Val Glu Glu Val Met Ser Asn Asn Thr Gly Thr Met
        515                 520                 525
Ala Met Glu Ala Ile Trp Val Ser Ser Tyr Ser Ser Thr Leu Arg Phe
    530                 535                 540
Ser Asn Gln Ala Val Lys Asn Met Lys Arg Leu Arg Val Phe Asn Met
545                 550                 555                 560
Gly Arg Ser Ser Thr His Tyr Ala Ile Asp Tyr Leu Pro Asn Asn Leu
                565                 570                 575
Arg Cys Phe Val Cys Thr Asn Tyr Pro Trp Glu Ser Phe Pro Ser Thr
            580                 585                 590
Phe Glu Leu Lys Met Leu Val His Leu Gln Leu Arg His Asn Ser Leu
        595                 600                 605
Arg His Leu Trp Thr Glu Thr Lys His Leu Pro Ser Leu Arg Arg Ile
    610                 615                 620
Asp Leu Ser Trp Ser Lys Arg Leu Thr Arg Thr Pro Asp Phe Thr Gly
625                 630                 635                 640
Met Pro Asn Leu Glu Tyr Val Asn Leu Tyr Gln Cys Ser Asn Leu Glu
                645                 650                 655
Glu Val His His Ser Leu Gly Cys Cys Ser Lys Val Ile Gly Leu Tyr
            660                 665                 670
Leu Asn Asp Cys Lys Ser Leu Lys Arg Phe Pro Cys Val Asn Val Glu
        675                 680                 685
Ser Leu Glu Tyr Leu Gly Leu Arg Ser Cys Asp Ser Leu Glu Lys Leu
    690                 695                 700
Pro Glu Ile Tyr Gly Arg Met Lys Pro Glu Ile Gln Ile His Met Gln
705                 710                 715                 720
Gly Ser Gly Ile Arg Glu Leu Pro Ser Ser Ile Phe Gln Tyr Lys Thr
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                725                 730                 735
His Val Thr Lys Leu Leu Leu Trp Asn Met Lys Asn Leu Val Ala Leu
            740                 745                 750
Pro Ser Ser Ile Cys Arg Leu Lys Ser Leu Val Ser Leu Ser Val Ser
        755                 760                 765
Gly Cys Ser Lys Leu Glu Ser Leu Pro Glu Glu Ile Gly Asp Leu Asp
    770                 775                 780
Asn Leu Arg Val Phe Asp Ala Ser Asp Thr Leu Ile Leu Arg Pro Pro
785                 790                 795                 800
Ser Ser Ile Ile Arg Leu Asn Lys Leu Ile Ile Leu Met Phe Arg Gly
                805                 810                 815
Phe Lys Asp Gly Val His Phe Glu Phe Pro Pro Val Ala Glu Gly Leu
            820                 825                 830
His Ser Leu Glu Tyr Leu Asn Leu Ser Tyr Cys Asn Leu Ile Asp Gly
        835                 840                 845
Gly Leu Pro Glu Glu Ile Gly Ser Leu Ser Ser Leu Lys Lys Leu Asp
    850                 855                 860
Leu Ser Arg Asn Asn Phe Glu His Leu Pro Ser Ser Ile Ala Gln Leu
865                 870                 875                 880
Gly Ala Leu Gln Ser Leu Asp Leu Lys Asp Cys Gln Arg Leu Thr Gln
                885                 890                 895
Leu Pro Glu Leu Pro Pro Glu Leu Asn Glu Leu His Val Asp Cys His
            900                 905                 910
Met Ala Leu Lys Phe Ile His Tyr Leu Val Thr Lys Arg Lys Lys Leu
        915                 920                 925
His Arg Val Lys Leu Asp Asp Ala His Asn Asp Thr Met Tyr Asn Leu
    930                 935                 940
Phe Ala Tyr Thr Met Phe Gln Asn Ile Ser Ser Met Arg His Asp Ile
945                 950                 955                 960
Ser Ala Ser Asp Ser Leu Ser Leu Thr Val Phe Thr Gly Gln Pro Tyr
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Pro Glu Lys Ile Pro Ser Trp Phe His His Gln Gly Trp Asp Ser Ser
            980                 985                 990
Val Ser Val Asn Leu Pro Glu Asn Trp Tyr Ile Pro Asp Lys Phe Leu
        995                 1000                1005
Gly Phe Ala Val Cys Tyr Ser Arg Ser Leu Ile Asp Thr Thr Ala His
    1010                1015                1020
Leu Ile Pro Val Cys Asp Asp Lys Met Ser Arg Met Thr Gln Lys Leu
1025                1030                1035                1040
Ala Leu Ser Glu Cys Asp Thr Glu Ser Ser Asn Tyr Ser Glu Trp Asp
                1045                1050                1055
Ile His Phe Phe Phe Val Pro Phe Ala Gly Leu Trp Asp Thr Ser Lys
            1060                1065                1070
Ala Asn Gly Lys Thr Pro Asn Asp Tyr Gly Ile Ile Arg Leu Ser Phe
        1075                1080                1085
Ser Gly Glu Glu Lys Met Tyr Gly Arg Leu Arg Leu Tyr Lys Glu Gly
    1090                1095                1100
Pro Glu Val Asn Ala Leu Leu Gln Met Arg Glu Asn Ser Asn Glu Pro
1105                1110                1115                1120
Thr Glu His Ser Thr Gly Ile Arg Arg Thr Gln Tyr Asn Asn Arg Thr
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Ser Phe Tyr Glu Leu Ile Asn
            1140
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Ser Val Lys Glu Gly Leu Leu Cys Leu Arg Ser Phe Ile Asp His Phe
            20                  25                  30
Ser Glu Ser Tyr Val Glu His Asp Glu Ala Cys Gly Leu Ile Ala Arg
        35                  40                  45
Val Ser Val Met Ala Tyr Lys Ala Glu Tyr Val Ile Asp Ser Cys Leu
    50                  55                  60
Ala Tyr Ser His Pro Leu Trp Tyr Lys Val Leu Trp Ile Ser Glu Val
65                  70                  75                  80
Leu Glu Asn Ile Lys Leu Val Asn Lys Val Val Gly Glu Thr Cys Glu
                85                  90                  95
Arg Arg Asn Thr Glu Val Thr Val His Glu Val Ala Lys Thr Thr Thr
            100                 105                 110
Asn Val Ala Pro Ser Phe Ser Ala Tyr Thr Gln Arg Ala Asn Glu Glu
        115                 120                 125
Met Glu Gly Phe Gln Asp Thr Ile Asp Glu Leu Lys Asp Lys Leu Leu
    130                 135                 140
Gly Gly Ser Pro Glu Leu Asp Val Ile Ser Ile Val Gly Met Pro Gly
145                 150                 155                 160
Leu Gly Lys Thr Thr Leu Ala Lys Lys Ile Tyr Asn Asp Pro Glu Val
                165                 170                 175
Thr Ser Arg Phe Asp Val His Ala Gln Cys Val Val Thr Gln Leu Tyr
            180                 185                 190
Ser Trp Arg Glu Leu Leu Leu Thr Ile Leu Asn Asp Val Leu Glu Pro
        195                 200                 205
Ser Asp Arg Asn Glu Lys Glu Asp Gly Glu Ile Ala Asp Glu Leu Arg
    210                 215                 220
Arg Phe Leu Leu Thr Lys Arg Phe Leu Ile Leu Ile Asp Asp Val Trp
225                 230                 235                 240
Asp Tyr Lys Val Trp Asp Asn Leu Cys Met Cys Phe Ser Asp Val Ser
                245                 250                 255
Asn Arg Ser Arg Ile Ile Leu Thr Thr Arg Leu Asn Asp Val Ala Glu
            260                 265                 270
Tyr Val Lys Cys Glu Ser Asp Pro His His Leu Arg Leu Phe Arg Asp
        275                 280                 285
Asp Glu Ser Trp Thr Leu Leu Gln Lys Glu Val Phe Gln Gly Glu Ser
    290                 295                 300
Cys Pro Pro Glu Leu Glu Asp Val Gly Phe Glu Ile Ser Lys Ser Cys
305                 310                 315                 320
Arg Gly Leu Pro Leu Ser Val Val Leu Val Ala Gly Val Leu Lys Gln
                325                 330                 335
Lys Lys Lys Thr Leu Asp Ser Trp Lys Val Val Glu Gln Ser Leu Ser
            340                 345                 350
Ser Gln Arg Ile Gly Ser Leu Glu Glu Ser Ile Ser Ile Ile Gly Phe
        355                 360                 365
Ser Tyr Lys Asn Leu Pro His Tyr Leu Lys Pro Cys Phe Leu Tyr Phe
    370                 375                 380
Gly Gly Phe Leu Gln Gly Lys Asp Ile His Asp Ser Lys Met Thr Lys
385                 390                 395                 400
Leu Trp Val Ala Glu Glu Phe Val Gln Ala Asn Asn Glu Lys Gly Gln
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Glu Asp Thr Arg Thr Arg Phe Leu Gly Arg Ser Tyr Trp
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1 5

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atcttagaca agccatcact gatcttgaaa cagccatcgg tgacttgaag gccatacgtg 180
atgacctgac tttacggatc caacaagacg gtctagaggg acgaagctgc tcaaatcgtg 240
ccagagagtg gcttagtgcg gtgcaagtaa cggagactaa aacagcccta cttttagtga 300
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gtgccgacta caaactgtgc aagaaggttt ctgccatatt gaagagcatt ggtgagctga 420
gagaacgctc tgaagctatc aaaacagatg gcgggtcaat tcaagtaact tgtagagaga 480
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gtgaagaaga agaaagagga atcattggtg tttatggacc tggtggggtt gggaagacaa 600
cgttaatgca gagcattaac aacgagctga tcacaaaagg acatcagtat gatgtactga 660
tttgggttca aatgtccaga gaattcggcg agtgtacaat tcagcaagcc gttggagcac 720
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gacgttacac agccttcaca acttaaccag agtgtgggga aattctgtaa gccaagattg    2340
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<400> 142

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            20                  25                  30
Gln Ala Ile Thr Asp Leu Glu Thr Ala Ile Gly Asp Leu Lys Ala Ile
        35                  40                  45
Arg Asp Asp Leu Thr Leu Arg Ile Gln Gln Asp Gly Leu Glu Gly Arg
    50                  55                  60
Ser Cys Ser Asn Arg Ala Arg Glu Trp Leu Ser Ala Val Gln Val Thr
65                  70                  75                  80
Glu Thr Lys Thr Ala Leu Leu Leu Val Arg Phe Arg Arg Arg Glu Gln
                85                  90                  95
Arg Thr Arg Met Arg Arg Arg Tyr Leu Ser Cys Phe Gly Cys Ala Asp
            100                 105                 110
Tyr Lys Leu Cys Lys Lys Val Ser Ala Ile Leu Lys Ser Ile Gly Glu
        115                 120                 125
Leu Arg Glu Arg Ser Glu Ala Ile Lys Thr Asp Gly Gly Ser Ile Gln
    130                 135                 140
Val Thr Cys Arg Glu Ile Pro Ile Lys Ser Val Val Gly Asn Thr Thr
145                 150                 155                 160
Met Met Glu Gln Val Leu Glu Phe Leu Ser Glu Glu Glu Glu Arg Gly
                165                 170                 175
Ile Ile Gly Val Tyr Gly Pro Gly Gly Val Gly Lys Thr Thr Leu Met
            180                 185                 190
Gln Ser Ile Asn Asn Glu Leu Ile Thr Lys Gly His Gln Tyr Asp Val
        195                 200                 205
Leu Ile Trp Val Gln Met Ser Arg Glu Phe Gly Glu Cys Thr Ile Gln
    210                 215                 220
Gln Ala Val Gly Ala Arg Leu Gly Leu Ser Trp Asp Glu Lys Glu Thr
225                 230                 235                 240
Gly Glu Asn Arg Ala Leu Lys Ile Tyr Arg Ala Leu Arg Gln Lys Arg
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                245                 250                 255
Phe Leu Leu Leu Leu Asp Asp Val Trp Glu Glu Ile Asp Leu Glu Lys
            260                 265                 270
Thr Gly Val Pro Arg Pro Asp Arg Glu Asn Lys Cys Lys Val Met Phe
        275                 280                 285
Thr Thr Arg Ser Ile Ala Leu Cys Asn Asn Met Gly Ala Glu Tyr Lys
    290                 295                 300
Leu Arg Val Glu Phe Leu Glu Lys Lys His Ala Trp Glu Leu Phe Cys
305                 310                 315                 320
Ser Lys Val Trp Arg Lys Asp Leu Leu Glu Ser Ser Ser Ile Arg Arg
                325                 330                 335
Leu Ala Glu Ile Ile Val Ser Lys Cys Gly Gly Leu Pro Leu Ala Leu
            340                 345                 350
Ile Thr Leu Gly Gly Ala Met Ala His Arg Glu Thr Glu Glu Glu Trp
        355                 360                 365
Ile His Ala Ser Glu Val Leu Thr Arg Phe Pro Ala Glu Met Lys Gly
    370                 375                 380
Met Asn Tyr Val Phe Ala Leu Leu Lys Phe Ser Tyr Asp Asn Leu Glu
385                 390                 395                 400
Ser Asp Leu Leu Arg Ser Cys Phe Leu Tyr Cys Ala Leu Phe Pro Glu
                405                 410                 415
Glu His Ser Ile Glu Ile Glu Gln Leu Val Glu Tyr Trp Val Gly Glu
            420                 425                 430
Gly Phe Leu Thr Ser Ser His Gly Val Asn Thr Ile Tyr Lys Gly Tyr
        435                 440                 445
Phe Leu Ile Gly Asp Leu Lys Ala Ala Cys Leu Leu Glu Thr Gly Asp
    450                 455                 460
Glu Lys Thr Gln Val Lys Met His Asn Val Val Arg Ser Phe Ala Leu
465                 470                 475                 480
Trp Met Ala Ser Glu Gln Gly Thr Tyr Lys Glu Leu Ile Leu Val Glu
                485                 490                 495
Pro Ser Met Gly His Thr Glu Ala Pro Lys Ala Glu Asn Trp Arg Gln
            500                 505                 510
Ala Leu Val Ile Ser Leu Leu Asp Asn Arg Ile Gln Thr Leu Pro Glu
        515                 520                 525
Lys Leu Ile Cys Pro Lys Leu Thr Thr Leu Met Leu Gln Gln Asn Ser
    530                 535                 540
Ser Leu Lys Lys Ile Pro Thr Gly Phe Phe Met His Met Pro Val Leu
545                 550                 555                 560
Arg Val Leu Asp Leu Ser Phe Thr Ser Ile Thr Glu Ile Pro Leu Ser
                565                 570                 575
Ile Lys Tyr Leu Val Glu Leu Tyr His Leu Ser Met Ser Gly Thr Lys
            580                 585                 590
Ile Ser Val Leu Pro Gln Glu Leu Gly Asn Leu Arg Lys Leu Lys His
        595                 600                 605
Leu Asp Leu Gln Arg Thr Gln Phe Leu Gln Thr Ile Pro Arg Asp Ala
    610                 615                 620
Ile Cys Trp Leu Ser Lys Leu Glu Val Leu Asn Leu Tyr Tyr Ser Tyr
625                 630                 635                 640
Ala Gly Trp Glu Leu Gln Ser Phe Gly Glu Asp Glu Ala Glu Glu Leu
                645                 650                 655
Gly Phe Ala Asp Leu Glu Tyr Leu Glu Asn Leu Thr Thr Leu Gly Ile
            660                 665                 670
Thr Val Leu Ser Leu Glu Thr Leu Lys Thr Leu Phe Glu Phe Gly Ala
        675                 680                 685
Leu His Lys His Ile Gln His Leu His Val Glu Glu Cys Asn Glu Leu
    690                 695                 700
Leu Tyr Phe Asn Leu Pro Ser Leu Thr Asn His Gly Arg Asn Leu Arg
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705 710 715 720
Arg Leu Ser Ile Lys Ser Cys His Asp Leu Glu Tyr Leu Val Thr Pro
725 730 735
Ala Asp Phe Glu Asn Asp Trp Leu Pro Ser Leu Glu Val Leu Thr Leu
740 745 750
His Ser Leu His Asn Leu Thr Arg Val Trp Gly Asn Ser Val Ser Gln
755 760 765
Asp Cys Leu Arg Asn Ile Arg Cys Ile Asn Ile Ser His Cys Asn Lys
770 775 780
Leu Lys Asn Val Ser Trp Val Gln Lys Leu Pro Lys Leu Glu Val Ile
785 790 795 800
Glu Leu Phe Asp Cys Arg Glu Ile Glu Glu Leu Ile Ser Glu His Glu
805 810 815
Ser Pro Ser Val Glu Asp Pro Thr Leu Phe Pro Ser Leu Lys Thr Leu
820 825 830
Arg Thr Arg Asp Leu Pro Glu Leu Asn Ser Ile Leu Pro Ser Arg Phe
835 840 845
Ser Phe Gln Lys Val Glu Thr Leu Val Ile Thr Asn Cys Pro Arg Val
850 855 860
Lys Lys Leu Pro Phe Gln Glu Arg Arg Thr Gln Met Asn Leu Pro Thr
865 870 875 880
Val Tyr Cys Glu Glu Lys Trp Trp Lys Ala Leu Glu Lys Asp Gln Pro
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Pro Glu Lys Leu Ile Cys Pro Lys Leu Thr Thr Leu Met Leu Gln Gln
1 5 10 15
Asn Ser Ser Leu Lys Lys Ile
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<210> 145
<211> 24
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Pro Thr Gly Phe Phe Met His Met Pro Val Leu Arg Val Leu Asp Leu

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 1               5                   10                  15
Ser Phe Thr Ser Ile Thr Glu Ile
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<400> 146
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Pro Leu Ser Ile Lys Tyr Leu Val Glu Leu Tyr His Leu Ser Met Ser
 1               5                   10                  15
Gly Thr Lys Ile Ser Val Leu
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 1               5                   10                  15
Arg Thr Gln Phe Leu Gln Thr Ile
            20
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<400> 148
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            20                  25                  30
Ala Glu Glu Leu Gly
        35
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<213> Arabidopsis thaliana

<400> 149
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Phe Ala Asp Leu Glu Tyr Leu Glu Asn Leu Thr Thr Leu Gly Ile Thr
 1               5                   10                  15
Val Leu Ser Leu Glu Thr Leu Lys Thr
            20                  25
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<213> Arabidopsis thaliana

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Leu Phe Glu Phe Gly Ala Leu His Lys His Ile Gln His Leu His Val
 1   5   10   15
Glu Glu Cys Asn Glu Leu Leu Tyr Phe Asn Leu
            20   25

<210> 151
<211> 26
<212> PRT
<213> Arabidopsis thaliana

<400> 151
Pro Ser Leu Thr Asn His Gly Arg Asn Leu Arg Arg Leu Ser Ile Lys
 1   5   10   15
Ser Cys His Asp Leu Glu Tyr Leu Val Thr
            20   25

<210> 152
<211> 29
<212> PRT
<213> Arabidopsis thaliana

<400> 152
Pro Ala Asp Phe Glu Asn Asp Trp Leu Pro Ser Leu Glu Val Leu Thr
 1   5   10   15
Leu His Ser Leu His Asn Leu Thr Arg Val Trp Gly Asn
            20   25

<210> 153
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<212> PRT
<213> Arabidopsis thaliana

<400> 153
Ser Val Ser Gln Asp Cys Leu Arg Asn Ile Arg Cys Ile Asn Ile Ser
 1   5   10   15
His Cys Asn Lys Leu Lys Asn Val Ser Trp Val Gln Lys Leu
            20   25   30

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<212> PRT
<213> Arabidopsis thaliana

<400> 154
Pro Lys Leu Glu Val Ile Glu Leu Phe Asp Cys Arg Glu Ile Glu Glu
 1   5   10   15
Leu Ile Ser Glu His Glu Ser Pro Ser Val Glu Asp
            20   25

<210> 155

<211> 22
<212> PRT
<213> Arabidopsis thaliana

<400> 155
Pro Thr Leu Phe Pro Ser Leu Lys Thr Leu Arg Thr Arg Asp Leu Pro
 1   5   10   15
Glu Leu Asn Ser Ile Leu
            20

<210> 156
<211> 23
<212> PRT
<213> Arabidopsis thaliana

<400> 156
Pro Ser Arg Phe Ser Phe Gln Lys Val Glu Thr Leu Val Ile Thr Asn
 1   5   10   15
Cys Pro Arg Val Lys Lys Leu
            20

<210> 157
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<212> DNA
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<400> 157
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cccttgttat ctgattttct gcaagagatt gagtctgtca aggtagagtt cagaaatgtt 180
tgcttgcaag ttctggatat atcacctttt tccctgacag atggagaagg ccttgttaat 240
ttcttattaa aaaaccaggc caaggtgccg aatgatgatg ctgtttcttc tgatggaagt 300
ttagaggatg caagcagcac tgagaaaatg ggacttccat ctgattttct ccgagagatt 360
gagtctgttg agataaagga ggccagaaaa ttatatgatc aagttttgga tgcaacacat 420
tgtgagacga gtaagcacga tggaaaaagc tttatcaaca ttatgttaac ccaacaggac 480
aaggtgctgg actatgatgc tggttcagtg tcttatcttc ttaaccaaat ctcagtagtt 540
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catatagaac ttacagatct cgctgaacgt gttcaagata aaaactacat tcgtttcttc 660
tctgtcaagg gttatattcc tgcttggtat tacacactat atctctctga tgtcaagcaa 720
ttgcttaagt ttgttgaggc agaggtaaag attatttgtc tgaaagtacc agattcttca 780
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gtcaaggagg gcttattgtg cctaagatca ttcattgatc atttttcaga aagctatgtt 960
gagcatgatg aagcttgtgg tcttatagca agagtttctg taatggcata caaggctgag 1020
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aggaacactg aagttactgt gcatgaagtt gcaaagacta ccactaatgt agcaccatct 1200
ttttcagctt atactcaaag agcaaacgaa gaaatggagg gttttcagga tacaatagat 1260
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gaaatagctg atgatctacg ccgatttttg ttgaccaaga gattcttgat tctcattgat 1560
gatgtgtggg actataaagt gtgggacaat ctatgtatgt gcttcagtga tgtttcaaat 1620
aggagtagaa ttatcctaac aacccgcttg aatgatgtcg ccgaatatgt caaatgtgaa 1680
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gaagtctttc aaggagagag ctgtccacct gaacttgaag atgtgggatt tgaaatatca    1800
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aagccttgtt ttctctattt tggaggattt ttgcagggaa aggatattca tgactcaaaa    2040
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gatacccgca caaggtttct tggacgatct tattggtagg aatctggtga tggccatgga    2160
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catggaaaag gccaaacaag aggatttcct tctccagatc aataggtaaa aaaaactgta    2280
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actctcattt ccatgtgttc tcttttattc aattcagtgg agaaggtgta tttcctgaac    2400
gattggaaga ataccgattg ttcgttcatt cttaccaaga tgaaattgat ctgtggcgcc    2460
catctcgctc taatgtccgc tctttactat tcaatgcaat tgatccagat aacttgttat    2520
ggccgcgtga tatctccttc atttttgaga gcttcaagct tgttaaagtg ttggatttgg    2580
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acatggatgt tttaactggt aactcacaat aacctaattt ggaaaccttt tctactccgc    2880
gtctctttta tggtaaagac gcagagaaga ttttgaggaa gatgccaaaa ttgagaaaat    2940
tgagttgcat attttcaggg acatttggtt attcaaggaa attgaagggt aggtgtgttc    3000
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atccagccaa acttcctcac aagttcaatt tcccctcgca actaagggaa ctgactttat    3120
caaagttccg tctaccttgg acccaaattt cgatcattgc agaactgccc aacttggtga    3180
ttcttaagtt attgctcaga gcctttgaag gggatcactg ggaagtgaaa gattcagagt    3240
tcctagaact caaatactta aaactggaca acctcaaagt tgtacaatgg tccatctctg    3300
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tacaccagaa catgtttatt ttgctagtat tacttgatac attaaaagaa atcgaactca    3660
tatttctgct acagtcttaa cttttcttgg gcttacttga ggtctagatt agatcaatgg    3720
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atattgttat ccctagccaa atttattatg ttcaaatgaa aactgatgtc acaactactt    3840
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tgtcagctaa actctttgtc accagaagtg tatttagaat tactgtggtt ttatgaaaga    3960
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ttatgttgaa ttcttgaaaa gaagaagaat caggagcagg taaagttatc tctttttatg    4140
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ctgagacttg aaccatccat gtccaaggca gttgagatgc tagtaaagaa agaagaagat    4860
gagcctgcac taattaatct ccctgtatga atgagagaat gagaaaaaga tggagcttca    4920
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<210> 158
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 158
ggnatgggng gnntnggnaa racnac 26

<210> 159
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 159
ncgngwngtn akdawncgna 20

<210> 160
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 160
ggwntbggwa arachac 17

<210> 161
<211> 33
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(33)
<223> n = A,T,C or G

<400> 161
nrynrdngtn gtyttnccna nnccnssnrk ncc 33

<210> 162
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 162
ggnmynssng gnntnggnaa racnac 26

<210> 163
<211> 13
<212> DNA
<213> Arabidopsis thaliana

<400> 163
tygaygayrt bra 13

<210> 164
<211> 16
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(16)
<223> n = A,T,C or G

<400> 164
tyccavayrt crtcna 16

<210> 165
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 165
vymnayrtcr tcnadnavna nnarna 26

<210> 166
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 166
wwnmrrdtny tnntnbtnht ngayga 26

<210> 167
<211> 21
<212> DNA

<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(21)
<223> n = A,T,C or G

<400> 167
ncgngwngtn akdawncgng a 21

<210> 168
<211> 21
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(21)
<223> n = A,T,C or G

<400> 168
ncknswngtn addatdaatn g 21

<210> 169
<211> 12
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(12)
<223> n = A,T,C or G

<400> 169
narnggnarn cc 12

<210> 170
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<400> 170
ggwytbccwy tbgchyt 17

<210> 171
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 171
ardgcvarwg gvarncc 17

<210> 172

<211> 24
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(24)
<223> n = A,T,C or G

<400> 172
nrnnwynavn shnarnggna rncc 24

<210> 173
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 173
ggnytnccny tndsnbt 17

<210> 174
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<400> 174
arrttrtcrt adswrawytt 20

<210> 175
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 175
arnyyntyrt ansrnannyy 20

<210> 176
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 176
rrnwthwsnt ayranrvnyt 20

<210> 177
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 177
gtnttyytnw snttymgrgg 20

<210> 178
<211> 23
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(23)
<223> n = A,T,C or G

<400> 178
ccnathttyt ayrwbgtnga ycc 23

<210> 179
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 179
gtnggnathg ayrmnca 17

<210> 180
<211> 21
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(21)
<223> n = A,T,C or G

<400> 180
raarcangcd atrtcnarra a 21

<210> 181
<211> 20
<212> DNA
<213> Arabidopsis thaliana

<220>

<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 181
ttyytngaya thgcntgytt 20

<210> 182
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 182
cccatrtcyy knadnwrrtc rtgcat 26

<210> 183
<211> 26
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(26)
<223> n = A,T,C or G

<400> 183
atgcaygayy wnhtnmrrga yatggg 26

<210> 184
<211> 15
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(15)
<223> n = A,T,C or G

<400> 184
narnswytyn arytt 15

<210> 185
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 185
wsnaarytnr arwsnyt 17

<210> 186
<211> 21
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(21)
<223> n = A,T,C or G

<400> 186
dwwytcnarn swnyknarnc c 21

<210> 187
<211> 17
<212> DNA
<213> Arabidopsis thaliana

<220>
<221> misc_feature
<222> (1)...(17)
<223> n = A,T,C or G

<400> 187
ggnytnmrnw snytnga 17

<210> 188
<211> 13
<212> PRT
<213> Arabidopsis thaliana

<400> 188
Leu Lys Phe Ser Tyr Asp Asn Leu Glu Ser Asp Leu Leu
1 5 10

<210> 189
<211> 16
<212> PRT
<213> Arabidopsis thaliana

<400> 189
Gly Val Tyr Gly Pro Gly Gly Val Gly Lys Thr Thr Leu Met Gln Ser
1 5 10 15

<210> 190
<211> 14
<212> PRT
<213> Arabidopsis thaliana

<400> 190
Gly Gly Leu Pro Leu Ala Leu Ile Thr Leu Gly Gly Ala Met
1 5 10

<210> 191
<211> 11

<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (2)...(2)
<223> Xaa is Met or Pro

<221> VARIANT
<222> (3)...(3)
<223> Xaa is Gly or Pro

<221> VARIANT
<222> (5)...(5)
<223> Xaa is Ile, Leu or Val

<221> VARIANT
<222> (10)...(10)
<223> Xaa is Ile, Leu or Thr

<221> VARIANT
<222> (11)...(11)
<223> Xaa is Ala or Met

<400> 191
Gly Xaa Xaa Gly Xaa Gly Lys Thr Thr Xaa Xaa
 1   5   10

<210> 192
<211> 11
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(11)
<223> Xaa at 1 is Phe or Lys; Xaa at 2 is Arg or Lys;
      Xaa at 3 is Ile, Val or Phe; Xaa at 5 is Ile, Leu
      or Val; Xaa at 6 is Ile or Leu; Xaa at 7 is Ile or
      Val; Xaa at 10 is Ile, Leu or Val; Xaa at 11 is
      Asp or Trp;

<400> 192
Xaa Xaa Xaa Leu Xaa Xaa Xaa Asp Asp Xaa Xaa
 1   5   10

<210> 193
<211> 8
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(8)
<223> Xaa at 1 is Ser or Cys; Xaa at 2 is Arg or Lys;
      Xaa at 3 is Phe, Ile or Val; Xaa at 4 is Ile or

Met; Xaa at 5 is Ile, Leu or Phe; Xaa at 7 is Ser, Cys or Thr;

<400> 193
Xaa Xaa Xaa Xaa Xaa Thr Xaa Arg
1 5

<210> 194
<211> 8
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(8)
<223> Xaa at 5 is Thr, Ala or Thr; Xaa at 6 is Leu or Val; Xaa at 7 is Ile, Val or Lys; Xaa at 8 is Val or Thr;

<400> 194
Gly Leu Pro Leu Xaa Xaa Xaa Xaa
1 5

<210> 195
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(7)
<223> Xaa at 1 is Lys or Gly; Xaa at 2 is Ile or Phe; Xaa at 5 is Asp or Lys; Xaa at 6 is Ala, Gly or Asn;

<400> 195
Xaa Xaa Ser Tyr Xaa Xaa Leu
1 5

<210> 196
<211> 4
<212> PRT
<213> Arabidopsis thaliana

<400> 196
Asn Ser His Arg
1

<210> 197

<400> 197
000

<210> 198
<211> 4
<212> PRT
<213> Arabidopsis thaliana

<400> 198
Thr Gly Asp Leu
1

<210> 199
<211> 4
<212> PRT
<213> Arabidopsis thaliana

<400> 199
His Gly Thr Tyr
1

<210> 200
<211> 11
<212> PRT
<213> Arabidopsis thaliana

<400> 200
Arg Met Ser His Gly Phe Arg Asn Ser Gln Ser
1 5 10

<210> 201
<211> 27
<212> PRT
<213> Arabidopsis thaliana

<400> 201
Gly Glu Met Val Glu Ser Thr Gly Lys Arg Ser Thr Lys Arg Arg Ala
1 5 10 15
Leu Leu Phe Thr Ala Leu Cys Ser Lys Leu Ile
20 25

<210> 202
<211> 9
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(9)
<223> Xaa at position 5 is Met or Asp

<400> 202
Pro Ile Phe Tyr Xaa Val Asp Pro Ser
1 5

<210> 203

<211> 6
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(6)
<223> Xaa at position 5 is Asp or Thr

<400> 203
Val Gly Ile Asp Xaa His
 1   5

<210> 204
<211> 9
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(9)
<223> Xaa at position 1 is Gln or Leu; Xaa at position 2
      is Leu or Ile; Xaa at position 3 is Arg or Gln.

<400> 204
Met His Asp Xaa Xaa Xaa Asp Met Gly
 1   5

<210> 205
<211> 6
<212> PRT
<213> Arabidopsis thaliana

<400> 205
Ser Lys Leu Lys Ser Leu
 1   5

<210> 206
<211> 8
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> (1)...(8)
<223> Xaa at position 3 is Arg or His; Xaa at position 7
      is Ile or Tyr.

<400> 206
Gly Leu Xaa Ser Leu Glu Xaa Leu
 1   5

<210> 207
<211> 6

<212> PRT
<213> Arabidopsis thaliana

<400> 207
Ser Lys Leu Lys Ser Leu
 1   5

<210> 208
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<400> 208
Lys Phe Ser Tyr Asp Asn Leu
 1   5

<210> 209
<211> 23
<212> PRT
<213> Arabidopsis Thalia

<220>
<221> VARIANT
<222> 2,3,5,6,8,9,11,12,14,16-9,21,22
<223> Xaa=any amino acid

<221> VARIANT
<222> 4,15,20,23
<223> Xaa=L or I or V

<400> 209
Pro Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Xaa
 1   5   10   15
Xaa Xaa Xaa Xaa Xaa Xaa Xaa
            20

<210> 210
<211> 23
<212> PRT
<213> Yeast

<220>
<221> VARIANT
<222> 2,3,5,6,8,9,11,12,14,16,17,19,21,22
<223> Xaa= any amino acid

<221> VARIANT
<222> 4,20,23
<223> Xaa=L or I or V

<400> 210
Pro Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Leu Xaa Leu Xaa
 1   5   10   15
Xaa Asn Xaa Xaa Xaa Xaa Xaa
            20

<210> 211
<211> 12
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> 2,3,5,6,8,9,11
<223> Xaa=any amino acid

<221> VARIANT
<222> 1
<223> Xaa=I or L or V

<221> VARIANT
<222> 10
<223> Xaa=I or L

<400> 211
Xaa Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Xaa Xaa Leu
 1   5   10

<210> 212
<211> 7
<212> PRT
<213> Arabidopsis thaliana

<220>
<221> VARIANT
<222> 1
<223> Xaa=I or R

<221> VARIANT
<222> 2,5-7
<223> Xaa=any amino acid

<400> 212
Xaa Xaa Asp Leu Xaa Xaa Xaa
 1   5

<210> 213
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<213> Arabidopsis thaliana

<400> 213
Gly Pro Gly Gly Val Gly Lys Thr
 1   5

<210> 214
<211> 16
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<400> 214
Thr Tyr Gly Ala Tyr Gly Ala Tyr Arg Thr Asx Tyr Arg Asx Arg Ala
 1   5   10   15